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The Asymmetrical Cost Behavior: Cost Stickiness in Indonesian Listed Manufacturing Companies

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Abstract

The asymmetrical behavior of cost or sticky cost is a condition, where costs increase more when the activity rises compared to the decrease when the activity falls. This research applies the study of Ratnawati& Nugrahanti (2015) by using the phenomenal framework of sticky cost from Anderson, Banker, & Janakiraman (2003) against the previous inconsistent results in Indonesian listed manufacturing companies. This research uses five years period from 2011-2015 withfifty three Indonesian listed manufacturing companies. The study use net sales revenue and asset intensity to capture the stickiness of period costs, namely selling, general, and administrative costs (SG&A) and product costs, namely cost of goods sold (COGS).The measurement of the study used in log linear panel data regression analysis. The result shows that the stickiness of selling, general, and administrative costs (SG&A) cannot be proven in overall, cost of goods sold (COGS) is found to behave anti-sticky, and asset intensity has no significant effect towards the degree of costs stickiness.

Keywords: Cost Stickiness; Selling, general, and administrative costs (SG&A); Cost of goods sold (COGS), Net sales, Indonesian listed manufacturing companies

1. Introduction

The firms have complicated business environment needs to understand the role cost of management. It is a critical factor that management needs to have a look in order the company to success in the competitive advantage. An appropriate costs control provides additional value for firms in terms of running the business (Heihong, 2014). Managers encounter the issues in the business activities to ensure the profitability and sustainability of the company's business performance. Thus, managers expect to have an effective costs control in their business. To have an effective costs control, it is important for the managers to understand cost behavior when net sales increase and decrease. Traditional cost method classifies costs as fixed costs and variable costs depending on the degree of change from the activity levels (Noreen, 1991; Lev & Thiagarajan, 1993). In addition, it explains the relationship between the cost and the activity in the period of time., for instance, when net sales increase 2%, the cost also increase 2% and vice versa ((Noreen, 1991).However, Anderson, Banker, &Janakiraman (2003) analyze that in contrast to traditional cost method, some costs will increase significantly when the activity rises compared to cost decrease when the activity falls. It is named as "asymmetric cost behavior", henceforth called "sticky cost." The focus on accounting literatures for sticky cost thereafter has fundamentally been influenced by them. Anderson, Banker, &Janakiraman (2003) find an indication of sticky cost on period costs, in particular selling, general, and administrative costs (SG&A) toward net sales. They found that from 7,629 firms over 20 years from 1979-1998 that on average there is an increase by 0.55% in selling, general, and administrative costs (SG&A) for 1% increase in net sales. However, for 1% decrease in net sales they find that selling, general, and administrative costs (SG&A) respond to the decrease only by 0.35%.

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Meanwhile, Subramaniam & Weidenmier (2003) also find sticky cost behavior on product costs, in particular cost of goods sold (COGS). The managers must consider the benefit and the risk of cutting unutilized resources against current and future economic condition related to the adjustment costs such as the costs of hiring and training new employees, and buy new fixed assets (Anderson, 2003). If net sales decrease in the short of period, the managers tend to adjust the cost. In addition, the costs will be difficult to adjust immediately when net sales recover in the period (Anderson, 2003). Banker &Byzalov (2014) argues that agency problem can affect sticky cost behavior. They find that cost stickiness is high when the firm uses more resources such as labor. This is because, labor is human resource that exploit by the company in order to earn firm's benefit such as, the revenue. This argue is supported by Anderson, Banker, & Janakiraman (2003).On the other hand, Banker, Flasher, & Zhang (2013) that the degree of costs stickiness as a result from deliberate managerial decision towards resource adjustments is affected by the firm's strategic positioning in the business environment. Kama & Weiss (2013) examine how self-interested managers may take advantage by making deliberate managerial decisions when net sales decrease to meet earnings target and avoid losses that can affect the degree of costs stickiness. It took 97.547 firms from 1979 to 2006, they found the indication when net sales drop, self-interested of the managers may meet earning target and attempt to avoid the losses by reduce the costs and dispose unutilized resources. Therefore, the degree of costs stickiness can be affected by pressure and high earning targets from top level of management. In addition, the managers focus on the management incentives. Thus, the managers tend to be more confident to deliberately make resource adjustments even when net sales drop for a short period of time, diminishing the degree of costs stickiness. Study sticky cost behavior not only conducted in developed countries, it also conducted in developing countries i..e, Indonesia. Armanto, Tiono, & Suthiono (2014) studied the stickiness of selling, general, and administrative costs in the Indonesian listed companies. they find that the costs of selling, general, and administrative in the manufacture industry are behaving more sticky compared to extractive industry and service industry because of business to business relationship that requires high demand of labor in the sales and marketing department. Dezie & Tamara (2014) studied the impact of costs stickiness toward the profitability of Indonesian firms, they found that there is a negative relationship between sticky costs and firm's performance. Ratnawati & Nugrahanti (2015) find that selling, general, and administrative costs (SG&A) are sticky in Indonesian listed manufacturing companies.

Firms with large assets and resources will have high degree of costs stickiness (Anderson, 2003). In addition, the adjustment of the costs will be high. It has been argued that it is easy to deduct the costs when net sales decrease unless there is long-term contracts exist. The firms have to choose either, they run the business with unutilized resources or they make a high adjustment of the costs that impact to net sales recover shortly, Thus, firms may experience profitability problem if the degree of costs stickiness is high. (Anderson, 2003). Contradict with Dezie& Tamara (2014), that sticky costs negatively affect the future profitability of the firm, instead firms must design their costs structure to overcome volatile sales and be more flexible spend in the operating. The degree of costs stickiness in the company in Indonesia is differs among the industries. A study finds that a high level in the manufacturing industry because of business to business relationship that requires high demand of labor in the sales and marketing department (Armanto, The Stickiness of Selling, General and Administrative Cost in Indonesia Listed Companies, 2014). In addition, The degree of costs stickiness shows an inconsistent result in Indonesia. Kusuma (2012) finds sticky costs in Indonesian listed manufacturing companies but asset intensity has no significant effect towards sticky costs. It is similar vein with Endarwati & Nugroho (2013) that they could not find sticky cost behavior in Indonesian listed manufacturing companies. Hidayatullah, Utami, & Herliansyah (2011) find that there is no indication of sticky cost on cost of goods sold (COGS) but there is an indication of sticky cost on selling, general, and administrative costs (SG&A) in Indonesian listed manufacturing companies. The study about sticky cost behavior itself is interesting and found that inconsistent result of accounting studies on sticky cost behavior in Indonesian listed manufacturing companies needs further analysis. By investigating whether the proportion of SG&A and COGS when net sales increase is greater than the proportion of SG&A and COSG when net sales decrease in Indonesian listed manufacturing companies. In addition, four research questions are arise (1) Is the proportion of increase on selling, general, and administrative costs (SG&A) when net sales increase greater than the proportion of decrease on selling, general, and administrative costs (SG&A) when net sales decrease in Indonesian listed manufacturing companies. (2) Is the proportion of increase on cost of goods sold (COGS) when net sales increase greater than the proportion of decrease on cost of goods sold (COGS) when net sales decrease in Indonesian listed manufacturing companies (3) Does the degree of selling, general, and administrative costs (SG&A) stickiness increase with the asset intensity of the company (4) Does the degree of cost of goods sold (COGS) stickiness increase with the asset intensity of the company?

2. Background of the Study

Traditional cost method classified costs as variable cost and fixed cost (Mowen & Hansen, 2012). The variable costs change proportionately toward the change in activity driver whereas fixed costs stay constant toward the change in activity driver. The reactions of the cost which depend on the level of the activities its name as "Cost Behavior" (Mowen & Hansen, 2012). Later, Anderson, Banker, &Janakiraman (2003) name it as "sticky cost" which defined as the costs increase when the level of activities increase and the costs decrease when the level of activities slow or decrease. Costs adjustment according to business activities are involved management intervention. Deliberate management intervention plays important role regarding the degree of costs stickiness related with resource adjustment (Anderson, 2003). It is supported by Yasukata & Kajiwara (2011)that sticky costs occur because of deliberate decision by managers and delayed adjustment. Further, the cost adjustment delay theory emphasizes that managers tend to retain unutilized resources if net sales decrease for a short period of time. As a result, sticky costs are reacted. Weiss (2010) study the degree of cost stickiness with firm revenue which is firms have high degree of cost stickiness give the managers difficult to predict earning accurately. Naturally, sales demand tends to fluctuate from time to time and therefore cannot be predicted precisely by managers. Thus, managers must evaluate and utilize the resources to meet the sales demands. For example, if the sales demand increase, the managers tend to add more resources to accommodate increase of the sales and if the sales demand decrease, the managers deduct unutilized resources intentionally. This matters create sticky and anti-sticky. Study sticky cost behavior in the management accounting refers to cost of goods sold (COGS), selling, general and administration (SG&A) and net sales as the proxies of the study. This is because is COGS and SG&A should be matched with the net sales revenue in the period in order to provide reliable financial information.

The biggest component in SG&A dominated by fixed cost rather than variable costs. This is because components cost i.e., salary, building depreciation and assets maintenance are the name of few have a big portion in the SG&A and would not affect to the fluctuate of net sales revenue (Balakrishnan, 2008). Meanwhile, COSG is affected to sales revenue since all production costs rely on sales demand in the market. Such costs elements in the COGS as, direct materials, direct labor and partially manufacture overhead are demanding from the sales market. This matters relate to sticky cost behavior. Some studies explained that SG&A is sticky with sales revenue while the others not. It depends on the characteristic industry and control of the human resource (Calleja, 2006). Study sticky cost behavior in the manufacture industry in Indonesia shows that COGS react with the degree of net sales revenue. The managers should manage firm's resources effective and efficient through budget planning and make the adjustments which depends on economic condition. (Hidayatullah, 2011) it is similar vein with Setiawan and Edison (2008), the managers do cost efficient in order to increase the firm revenue.

3. METHODOLOGY

The study use quantitative method by using secondary data. There are three parts explain in this section. Firstly, sampling procedure and data collection. Secondly, research model and measurement and finally, the hypotheses development

3.1. Sampling Procedure & Data collection

The population of the study is all Indonesian manufacturing companies listed in Indonesia Stock Exchange (IDX) which consist of 145 listed manufacturing companies in Indonesia Stock Exchange (IDX). The sampling method is purposive sampling. Due to different currency in the financial statement and the company should have positive net income during the period 2011 until 2015. Therefore, only 53 manufacturing companies are selected as sample of the study. Data is collected from manufacturing company that listed in Indonesian Stock Exchange (IDX). IDX provides financial statement and annual report from 2011 until 2015.

3.2. Research model and measurement

There are five latent variable in the study. Net sales revenue is independent variable, dummy variable and asset intensity are control variables and selling, general, and administrative costs (SG&A) and cost of goods sold (COGS) represent are dependent variables. Net sales revenue as the measurement of the variable, it also describes as sales revenue after deduct discount, return and allowance. Asset intensity describes as amount of capital needed per dollar of the revenue.

Meanwhile, dummy variable explains as differentiate variable with constant value between one and zero. Dummy variables equals with one if the firm experiences sales decrease in year t, otherwise zero. Selling ,general and administrative cost (SG&A) represent the period cost in the financial statement while Cost of Goods Sold (COGS) represent product cost. Furthermore, four research model is developed

3.2.1. The research model 1 for the stickiness of selling, general, and administrative costs (SG&A):

$$\log\left[\frac{\text{SG\&Ai, t}}{\text{SG\&Ai, t}-1}\right] = \beta 0 + \beta 1 \log\left[\frac{\text{Revenuei, t}}{\text{Revenuei, t}-1}\right] + \beta 2 * \text{Decrease\_Dummyi, t} * \log\left[\frac{\text{Revenuei, t}}{\text{Revenuei, t}-1}\right] + \varepsilon \text{i, t}$$

3.2.2. The research model 2 for the stickiness of cost of goods sold (COGS):

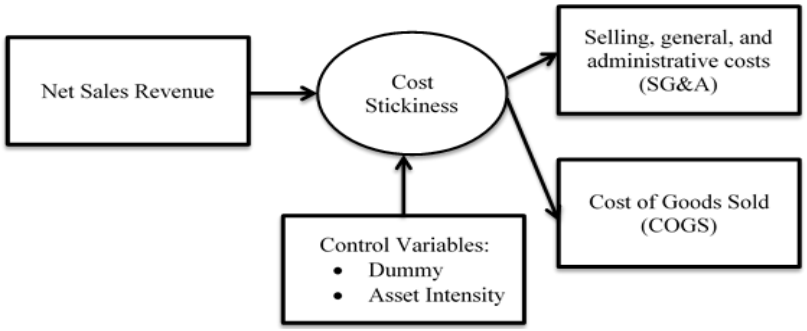
$$\log\left[\frac{\text{COGSi, t}}{\text{COGSi, t}-1}\right] = \beta 0 + \beta 1 \log\left[\frac{\text{Revenuei, t}}{\text{Revenuei, t}-1}\right] + \beta 2 * \text{Decrease\_Dummyi, t} * \log\left[\frac{\text{Revenuei, t}}{\text{Revenuei, t}-1}\right] + \varepsilon \text{i, t}$$

3.2.3. The research model 3 for the stickiness of selling, general and administration (SG&A) with Asset Intensity:

$$\log\left[\frac{\text{SG\&Ai, t}}{\text{SG\&Ai, t}-1}\right] = \beta 0 + \beta 1 \log\left[\frac{\text{Revenuei, t}}{\text{Revenuei, t}-1}\right] + \beta 2 * \text{Decrease}_{\text{Dummyi}}\text{, t} * \log\left[\frac{\text{Revenuei, t}}{\text{Revenuei, t}-1}\right] + \beta 3 * \text{Decrease\_Dummyi, t} * \log\left[\frac{\text{Revenuei, t}}{\text{Revenuei, t}-1}\right] * \log\left[\frac{\text{Asseti, t}}{\text{Revenuei, t}}\right] + \varepsilon \text{i, t}$$

3.2.4. The research model 4 for stickiness of cost of goods sold (COGS) with Asset Intensity:

$$\log\left[\frac{\text{COGSi, t}}{\text{COGSi, t}-1}\right] = \beta 0 + \beta 1 \log\left[\frac{\text{Revenuei, t}}{\text{Revenuei, t}-1}\right] + \beta 2 * \text{Decrease}_{\text{Dummyi}}\text{, t} * \log\left[\frac{\text{Revenuei, t}}{\text{Revenuei, t}-1}\right] + \beta 3 * \text{Decrease}_{\text{Dummyi}}\text{, t} * \log\left[\frac{\text{Revenuei, t}}{\text{Revenuei, t}-1}\right] * \log\left[\frac{\text{Asseti, t}}{\text{Revenuei, t}}\right] + \varepsilon \text{i, t}$$



3.3. Hypothesis development

Based on measurement variable above, therefore four hypotheses are developed namely,

H1: The proportion of increase on selling, general, and administrative costs (SG&A) when net sales increase is greater than the proportion of decrease on selling, general, and administrative costs (SG&A) when net sales decrease in Indonesian listed manufacturing companies for the period 2011-2015. Selling, general, and administrations costs (SG&A) are sticky to changes in sales level

H2: The proportion of increase on cost of goods sold (COGS) when net sales increase is greater than the proportion of decrease on cost of goods sold (COGS) when net sales decrease in Indonesian listed manufacturing companies for the period 2011-2015. Cost of goods sold (COGS) is sticky to changes in sales level

H3: The degree of selling, general, and administrative costs (SG&A) stickiness increases with the asset intensity of the company. Asset intensity is associated with selling, general, and administrative costs (SG&A) stickiness.

H4: The degree of cost of goods sold (COGS) stickiness increases with the asset intensity of the company. Asset intensity is associated with cost of goods sold (COGS) stickiness.

4. Result Analysis

4.1. Descriptive Statistic

Descriptive statistic explains average, highest, lowest and deviation value for all the variables from 2011 until 2015. Table 4.1 shows LogΔSales value is 0.050885 in average with the highest value of 0.352863 and the lowest value is -0.154283. The standard deviation of LogΔSales variable shows 0.059167, bigger than the mean value which mean the data is highly dispersed. LogΔCogs value is 0.051983 in average from total 265 number of observations. The highest value of LogΔCogs is 0.382707 and the lowest value is -0.149916. The highest standard deviation value is 0.061936 than the mean value indicates that the data are spread out over a large range of values. LogΔSga is 0.051369 from total 265 number of observations. The highest value is 0.593333 and the lowest value derived with value 0.340188. A standard deviation value shows 0.068474.It is bigger than the mean value, it is indicating the data is highly diverse. On the other hand, The highest value of LogAssetIntensity is 0.653810 and the lowest value of LogAssetIntensity is 0.459805. A standard deviation is 0.199985 which is acquired and it is bigger than the mean value. Dummy*LogΔSales*LogAssetIntensity also shows a negative average of -0.000450. The highest value of Dummy*LogΔSales*LogAssetIntensity is 0.017842 then, the lowest value is -0.042413. The standard deviation of Dummy*LogΔSales*LogAssetIntensityshows 0.004573 and it is higher than its negative mean value.

Table 4.1 Statistical Descriptive

	Mean	Median	Max	Min	Std. Dev.
LogΔSales	0.050885	0.049923	0.352863	-0.154283	0.059167
LogΔCogs	0.051983	0.049436	0.382707	-0.149916	0.061936
LogΔSga	0.051369	0.051581	0.593333	-0.340188	0.068474
LogAssetIntensity	-0.043929	-0.061818	0.653810	-0.459805	0.199985
Dummy* LogΔSales	-0.005373	0.000000	0.000000	-0.154283	0.017954
Dummy*LogΔSales* LogAssetIntensity	-0.000450	0.000000	0.017842	-0.042413	0.004573

4.2. Assumption test

The classical assumption test consists of normality test, multicollinearity test and heteroscedasticity test. the classical assumption test aims to ensure that data free from error therefore, avoid misstatement. The results finds the data does not diverse and it distributes normally. Furthermore, no multicollinearity and heteroscedasticity occur as a results of the testing.

4.3. Hypothesis Testing

The study uses E-views 9.0 software to test the hypothesis. The hypothesis is tasted in order to find the relationship between the variables of the study. Table 4.2. shows the result of testing hypothesis one which is adjusted R-square 0.366618 and F-test 0.0000. it indicates independent variable i.e., sales revenue and decrease_dummy as control variable simultaneously affect the dependent variable i.e., selling, general, and administrative costs (SG&A). Furthermore, the coefficient value of $\beta 1$ that shows from LogΔSales is 0.426497 and t-value 6.617539 is significant with p-value 0.0000. at the same time, coefficient value $\beta 2$ is -0.011930 with t-value -0.059504 and -value 0.9526 is not significant. It indicates that decrease_dummy as control variable does not significantly affect to SG&A as dependent variable. In addition, the results of combination $\beta 1+\beta 2$ is 0.414567, it means SG&A decrease 0.414% for every 1% decrease in net sales revenue and net sales revenue increase by 1%, SG&A increase by 0.426%. the results indicates that there is asymmetrical cost behavior on SG&A in Indonesian listed manufacturing companies from period 2011-2015. It occurs when SG&A increase then net sales revenue also increase and vice versa.

However, another result shows differently that p-value of β2 does not significant due to its greater than .05, thus the stickiness SG&A cannot be proven. In addition, it is contradicting with framework of Anderson, Banker, &Janakiraman (2003) that SG&A sticky with net sales.

The insignificant between the result shows that managers in manufacture companies are able to manage and adjust between SG&A with sales revenue therefore it leads to anti-sticky cost behavior on SG&A in listed manufacture companies in Indonesia. thus, H1 is rejected

Table 4.2. research model 1

Variables	**R-Squared 0.496687** **Adjusted R-squared 0.366618** **F-test 3.818626** **Prob (F-statistic) 0.000***	
	Coefficient (t-value)	**p-value**
Constant (x)	.029	***
LOGΔSALES (β1)	.427	***
DUMMY*LOGΔSALES(β2)	(.012)	.952

Significance level *(0.1) **(0.05) ***(0.01)

The second test is to examines the hypothesis two. Table 4.3 shows that adjusted R-square 0.963939 and F-test 0.0000, it indicates net sales revue and decrease dummy as control variable affect the COGS simultaneously. The results shows coefficient β1, which is LogΔSales has a positive value of 1.011366. it means COGS increases 1.011% every 1% increase in net sales revenue. In addition, the coefficient β1 with t-value of 61.27036 is significant with 0.0000 p-value. The results shows partially prove that net sales revenue affect to COGS. However. Coefficient β2 which has p-value 0.78 is bigger than 0.05 and this is not significant. It shows that decrease dummy variable does not significantly affect to COGS. The combination coefficient β1 and β2 is 1.027 which means the COGS decrease by 1.027% for every 1% decrease of net sales revenue. In addition, COGS in manufacturing companies in Indonesia behave anti-sticky. It shows that the managers of the companies are pessimistic that COGS would adjust when net sales decrease. Thus, H2 is rejected

Table 4.3 Result model 2

Variables	**R-Squared 0.964293** **Adjusted R-squared 0.963939** **F-test 2727.538** **Prob (F-statistic) 0.000***	
	Coefficient (t-value)	**p-value**
Constant (x)	.000	.321
LOGΔSALES (β1)	1.01	***
DUMMY*LOGΔSALES(β2)	.015	.789

Significance level *(0.1) **(0.05) ***(0.01)

The third test is to examine the hypothesis three and the result shows adjusted R-square is 0.3439. model 3 uses assets intensity as control variable. Table 4.4 shows that f-test is 0.0000, Coefficient β1, which is LogΔSales is 0.414928, t-value 6.395224 which means net sales revenue with assets intensity has partially affect to COGS. On the other hand, Coefficient β2 which has value of 0.048585, t-value of 0.242401, and p-value of 0.8087 have not significant due to its p-value >0.05. it is similar with β3 which has p-value is greater than 0.05. the overall of the results shows that assets intensity has not significant affect on the degree of selling, general and administrative (SG&A) stickiness. Based on the result shows, despite focus on asset intensity, the manager company put their attention on the fluctuation on sales revenue due to make adjustment on SG&A . the managers assume that as long as the company could generate high profit, assets intensity either high or low will not be adjusted to SG&A. thus H3 is rejected

Table 4.4 Result model 3

Variables	**R-Squared 0.481627** **Adjusted R-squared 0.343980** **F-test 3.499003** **Prob (F-statistic) 0.000***** **Coefficient (t-value)**	**p-value**
Constant (x)	.030	.000
LOGΔSALES (β1)	.414	.000
DUMMY*LOGΔSALES (β2)	.048	.808
DUMMY*LOGΔSALES*LOGASSETIN (β3)	.852	.477

Significance level *(0.1) **(0.05) ***(0.01)

The final result is to examine final hypothesis. Table 4.4 shows adjusted R-square is 0.964310. by adding assets intensity as control variable the result shows that f-test is significant with 0.000. Coefficient β1, which is LogΔSales has a p-value 1.010890 and t-value 61.55068. it shows that net sales revenue affects cost of goods sold (COGS). on the other hand, Coefficient β2 has a positive value of 0.007823, t-value of 0.133767 and p-value of 0.8937. result of p-value does not significant due to surpass 0.05. Coefficient β3 has a positive value of 0.372762, t-value of 1.760648, and p-value of 0.0798. similar with Coefficient β2, result of p-value does not significant due to surpass 0.05. based on the result, it would be assume that degree of cost of goods sold (COGS) stickiness increases with the asset intensity of the company, then the coefficient value of β2 and β3 should be less than zero and significant <0.05. Thus, asset intensity has no effect towards the degree of cost of goods sold (COGS) stickiness. Based on the results, indicates that COGS easy to adjust when net sales increase. The managers do not consider high or low assets intensity to adjust the COGS, instead focusing on fluctuation net sales revenue, thus H4 is rejected.

Hypotheses	Assumption	Result
H1: The proportion of increase on selling, general, and administrative costs (SG&A) when net sales increase is greater than the proportion of decrease on selling, general, and administrative costs (SG&A) when net sales decrease in Indonesian listed manufacturing companies for the period 2011-2015. Selling, general, and administrations costs (SG&A) are sticky to changes in sales level	+	Rejected
H2: The proportion of increase on cost of goods sold (COGS) when net sales increase is greater than the proportion of decrease on cost of goods sold (COGS) when net sales decrease in Indonesian listed manufacturing companies for the period 2011-2015. Cost of goods sold (COGS) is sticky to changes in sales level	+	Rejected
H3: The degree of selling, general, and administrative costs (SG&A) stickiness increases with the asset intensity of the company. Asset intensity is associated with selling, general, and administrative costs (SG&A) stickiness	+	Rejected
H4: The degree of cost of goods sold (COGS) stickiness increases with the asset intensity of the company. Asset intensity is associated with cost of goods sold (COGS) stickiness	+	Rejected

5. CONCLUSION

The fluctuation on net sales revenue plays important role to capture the asymmetric cost behavior phenomena. Cost is sticky when the proportion of increase on cost when net sales revenue increase is bigger than the proportion of decrease on cost when net sales revenue decrease, if the proportion of decrease on cost when net sales revenue decrease is bigger than the proportion of increase on cost when net sales revenue increase, then it is called anti-sticky. Both sticky and anti-sticky cost behavior is affected by deliberate managerial decision regarding resource adjustment costs and sometimes agency problem. The study finds that SG&A in listed manufacture company in Indonesia are behaved sticky. However, the existence of the stickiness of selling, general, and administrative costs (SG&A) in Indonesian listed manufacturing companies cannot be proven and the difference value is not statistically significant and lead to anti-sticky cost behavior.

Furthermore, It also indicates that the management would make the decision in terms of adjusting economic resources when net sales revenue decrease. Meanwhile, COGS in listed manufacturing companies are behaved anti-sticky. This is because, it is easy to adjust COGS when net sales revenue be fluctuated compare to adjust SG&A to net sales revenue. Furthermore, asset intensity as control variable does not play role to the degree of stickiness COGS and SG&A. This is because the behavior of managers to adjust the costs based on the fluctuate of net sales revenue. The managers treat the asset intensity independently, they look only at the usefulness of the firm's assets effectively and efficiently.

The study finds potential of anti-sticky cost behavior on selling, general, and administrative costs (SG&A) and anti-sticky cost behavior on cost of goods sold (COGS) in Indonesian listed manufacturing companies provides the signal of the behavior the managers to reduce the firm resources including the costs when net sales revenue of the company reduce.

This study cannot be generalized since the sample of study is Manufacture Company in Indonesia. the application of behavior sticky cost will be different in the other industry such as, service and trading industry. This is because, different components and recognition of SG&A and COGS. The results will be different to others countries especially for developed country which is net sale revenue could be predicted. the period also plays significant role to find the sticky cost behavior in manufacture company in Indonesia. Since the study conducted from 2011 to 2015 which was stability financial condition, it would explain differently in the crisis period.

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